

Claims:

This listing of the claims will replace all prior versions and listings of claims in the application:

1-28 (Cancelled).

29. (Currently amended) A method for correlating a first packet of feature waveforms from an unknown source with a second packet of feature waveforms ~~from~~ ~~from a known broadcast audio source in order to associate a known broadcast audio~~ source with the first packet of feature waveforms, comprising the steps of:

(A) ~~receiving free field audio signals using a microphone that is included in a portable data collection unit, wherein the free field audio signals are audible to a user proximate the portable data collection unit, and generating the first packet of feature waveforms in accordance with said free field audio signals received by the microphone; and determining, with at least one processor, at least first, second and third correlation values (cv₁, cv₂, cv₃) by correlating features from the first and second packets, wherein the first correlation value (cv₁) is determined by correlating features associated with a first frequency band from the first and second packets, the second correlation value (cv₂) is determined by correlating features associated with a second frequency band from the first and second packets, and the third correlation value (cv₃) is determined by correlating features associated with a third frequency band from the first and second packets;~~

(B) ~~computing, with said at least one processor, a first weighting value in accordance with the features from the second packet associated with the first frequency band, a second weighting value in accordance with the features from the second packet associated with the second frequency band, and a third weighting value in accordance~~

with the features from second packet associated with the third frequency band;

(C) computing, with said at least one processor, a weighted Euclidean distance value (D_w) representative of differences between the first and second packets from the first, second and third correlation values and the first, second and third weighting values; and

(D) associating, with said at least one processor, the first frequency packet with the known source in accordance with the weighted Euclidean distance value (D_w);

wherein the first weighting value corresponds to a standard deviation (std_1) of the features from the second packet associated with the first frequency band, the second weighting value corresponds to a standard deviation (std_2) of the features from the second packet associated with the second frequency band, and the third weighting value corresponds to a standard deviation (std_3) of the features from the second packet associated with the third frequency band;

wherein the weighted Euclidean distance value (D_w) is determined in accordance with the following equation:

$$D_w = [((std_1) * (1 - cv_1))^2 + ((std_2) * (1 - cv_2))^2 + ((std_3) * (1 - cv_3))^2]^{1/2} / [(std_1)^2 + (std_2)^2 + (std_3)^2]^{1/2}$$

and

(D) determining, with said at least one processor and in accordance with the weighted Euclidean distance value (D_w), whether the first packet derived from the free field audio signals received by the microphone in the portable data collection unit is associated with the known broadcast audio source.

30. (Cancelled)

31. (Currently amended) A method for correlating a packet of feature waveforms from an unknown source with a packet of feature waveforms from a known broadcast audio source in order to associate a known broadcast audio source with the packet of feature waveforms from the unknown source, comprising the steps of:

(A) receiving free field audio signals using a microphone that is included in a portable data collection unit, wherein the free field audio signals are audible to a user proximate the portable data collection unit, and generating a first packet of feature waveforms in accordance with said free field audio signals received by the microphone; and determining, with at least one processor, at least first, second and third correlation values by correlating features from the first packet and a second packet associated with the known broadcast audio source packets, wherein the first correlation value is determined by correlating features associated with a first frequency band from the first and second packets, the second correlation value is determined by correlating features associated with a second frequency band from the first and second packets, and the third correlation value is determined by correlating features associated with a third frequency band from the first and second packets;

(B) computing, with said at least one processor, a Euclidean distance value (D(n-1)) representative of differences between the first and second packets from the first, second and third correlation values;

(C) receiving free field audio signals using the microphone that is included in the portable data collection unit in order to generate a third packet of feature

waveforms in accordance with said free field audio signals received by the microphone;
and determining, with said at least one processor, at least fourth, fifth and sixth
correlation values by correlating features from the third packet and a fourth packet
associated with the known broadcast audio source packets, wherein the fourth correlation
value is determined by correlating features associated with the first frequency band from
the third and fourth packets, the fifth correlation value is determined by correlating
features associated with the second frequency band from the third and fourth packets, and
the sixth correlation value is determined by correlating features associated with the third
frequency band from the third and fourth packets;

(D) computing, with said at least one processor, a Euclidean distance
value (D(n)) representative of differences between the third and fourth packets from the
fourth, fifth and sixth correlation values;

(E) updating, with said at least one processor, the Euclidean distance
value (D(n)) using the Euclidean distance value (D(n-1)); and

(F) determining, with said at least one processor and associating the
third packet with the known source in accordance with the updated Euclidean distance
value (D(n)), whether the third packet derived from the free field audio signals received
by the microphone in the portable data collection unit is associated with the known
broadcast audio source.

32. (Original) The method of claim 31, wherein the second and fourth
packets are known a priori to represent signals broadcast from the known source.

33. (Original) The method of claim 32, wherein the third packet is

positioned immediately after the first packet in a sequence of packets of feature waveforms.

34. (Original) The method of claim 33, wherein the fourth packet is positioned immediately after the second packet in a sequence of packets of feature waveforms.

35. (Original) The method of claim 34, wherein the updated the Euclidean distance value ($D(n)$) is determined in step (E) in accordance with the following equation:

$$D(n)=k*D(n-1)+(1-k)*D(n)$$

where k is a coefficient that is less than 1.

36. (Original) The method of claim 31, wherein step (F) comprises:
(F) associating the third frequency packet with the known source if the updated Euclidean distance value ($D(n)$) is less than a threshold.